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ABSTRACT

A representative sample of study skills necessary for using maps, graphs and tables, and references was selected, and criterion-referenced tests assessing those skills were administered to sixth, ninth, and twelfth graders. Because the tests were criterion-referenced, no time limits were set and all students had ample opportunity to complete each of the ten tests. The sixth and ninth grade students' study-skills attainment was very low. Based on the results, the assumption that students have acquired the basic skills by the end of elementary school or by middle school is in question. The twelfth-grade students' skill attainment was higher, but the results indicated many seniors lacked the necessary skill attainment for independently using standard graphic and reference sources. (Author/AA)

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STUDY SKILLS MASTERY AMONG MIDDLE AND HIGH SCHOOL STUDENTS

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ABSTRACT

Bibliography	Study Skills Mastery Among Middle and High School Students Karlyn Kamm, University of Wisconsin, Madison; Eunice Askov, Pennsylvania State University and Roger Klumb, National Computer Systems, Minneapolis, Minnesota
Purpose	Assesses middle and high school students' mastery of a subset of the basic skills, study skills.
Methods	A representative sample of study skills in the maps, graphs and tables, and reference areas was selected and criterion-referenced tests assessing those skills were administered to sixth, ninth and twelfth graders. Because the tests were criterion-referenced, no time limits were set and all students had ample opportunity to complete each of the ten tests.
Results and Conclusions	The sixth and ninth grade students' study skills attainment was very low. Based on the results, assumptions that students have acquired the basic skills by the end of elementary school or by middle school are in question. The twelfth grade students' skill attainment was higher but the results indicated many seniors lack the necessary skill attainment for independently using standard graphic and reference sources. Further testing is warranted to demonstrate the need for a focused and systematic approach to basic skill instruction.

STUDY SKILLS MASTERY AMONG MIDDLE AND HIGH SCHOOL STUDENTS

INTRODUCTION

The emphasis on experimentation in the schools in the 1960's has given way to a cry of "Back to the Basics" in the 1970's. Parents are strongly questioning what their children are learning in school. One essential question is: Are children learning their basic skills? The purpose of this study is to determine whether students know a particular subset of the basic skills, the study skills.

Educators use the term basic skills to refer to a great number and variety of types of skills. What these skills have in common, however, is that they are all considered to be fundamental to the learning process. In fact, without acquisition of the basic skills a person would be considered functionally illiterate--that is, he or she would have difficulty in coping with the problems of everyday life. The basic skills describe general abilities which not only help students to attain information independently, but they serve as a basis from which more sophisticated and refined skills can be developed.

Although study skills, too, is a term which is widely used and refers to a variety of skills, it does usually pertain to fundamental abilities. The study skills we discuss in this paper are basic map, graph and table, and reference skills. Henceforth, our use of the term "study skills" pertains to these particular skills.

RATIONALE

Reasons for Considering Study Skills as Basic Skills.

There are several reasons for considering study skills as basic skills. One is that researchers and educators alike have commented on the importance of these skills. One cartographer has stated, "....there are indications that lack of a sense of spaciality in our society must be remedied...for very practical reasons. The words 'city' and 'suburb,' for example, can mislead us for they sound like compartmentalized, discrete spaces...While our direct experience in space is normally limited to what we can sense around us at a point, we are able to conceive of a space that continues beyond us. We do this partly through movement and travel and memory, but we also do it through representation systems--most often the map.... Clearly, mapping as a knowing activity is of fundamental value in our culture....Maps are our fundamental way of depicting and storing spatial information about the earth's surface as concisely as possible (1:18-19)." A mathematics specialist has commented, "In this modern day and age people are confronted with various pictorial representations of data and, in the future, children will be faced with an ever-increasing mass of pictorial information. It is urgent that students be able to understand these pictorial representations and from this understanding make intelligent interpretations (2:199)."

In the 1960's reference skills were indirectly investigated through a massive school improvement project--the Knapp project (3). The focus of it was to investigate elementary and secondary library

programs in light of improving education in the U.S. Another major effort of the 1960's was a revised and exhaustive document on study skills published in the twenty-third yearbook of the National Council for the Social Studies (4). In the report teaching, re-teaching, maintaining, and extending the skills are emphasized. In addition to the numerous reports and observations on the study skills, certain normed-referenced tests, such as the Iowa Tests of Basic Skills (5) and the Comprehensive Tests of Basic Skills (6) include sections which test knowledge of map, graph and table, and reference skills.

Are the Skills Taught in the Schools?

Historically, there was some emphasis on study skills, but it seemed to decline through the 20th century until the 1950's. The main reason for a renewed interest was perhaps the changing environment. Job and Weiser commented, "Maps and globes are the media via which many of the most basic learnings of the social sciences are transmitted, and no other communication tool is as effective for the purpose. If a child is to develop an understanding of the social world around him, he must begin by understanding the physical world (7:6)."

The renewed interest in study skills was not immediately realized by curriculum designers and textbook writers. In 1972 the reading project staff at the Wisconsin Research and Development Center for Cognitive Learning (Madison) conducted a survey (8) in which they reported that little attention has been paid to the creation of an

organizational or developmental framework for the skills. Most of the skill outlines that had been devised suggested that there is a vast number of unrelated skills rather than that there are only a few fundamental skills, each with a number of related subskills. In addition to overlooking such a developmental framework, existing instructional materials tended to completely ignore important background concepts that a child must understand before undertaking a particular skill. Standardized tests seemed to parallel the instructional materials in that they treat the skills as an array of unrelated tools the child should acquire. The skills appeared to be selected randomly for assessment.

In general, their survey (8) showed that up to that time little thought had been given to either the interrelationship existing between the skills or to the related concepts. Teaching of the skills had been incidental rather than systematic. As a consequence of this report in the early 1970's, the project staff developed an organized framework for study skills which presents the skills in a developmental sequence. This sequence is described in the Wisconsin Design for Reading Skill Development, Teacher's Planning Guide: Study Skills (9).

Are the Skills Being Learned?

Because study skills are basic information-gathering techniques, a logical concern is whether students are attaining the skills. Many recent reports (10) argue that national test scores in reading, writing, and arithmetic have dropped and more "functional illiterates"

are emerging from the schools. One report (10) states that, "....11 percent of the nation's 17-year-olds are functionally incompetent. They cannot read a newspaper, fill out an application for a driver's license, or even read labels on medicine bottles. Similar deficiencies are found in math and science." Another survey (10) claims, "...one in five U.S. adults is so poor in basic skills that he finds it difficult to cope with everyday life."

Other evidence (11) is presented which suggests that students' literal comprehension has improved, but their scores on inferential comprehension have dropped. Inferential comprehension was defined as the ability to read "between" the lines. These results inadvertently say something about study skills, since knowledge of the graphic study skills can be of immeasurable help in getting perspective on a written passage. One main use of diagrammatic material is to reduce complex ideas in print to a simple picture that is understandable at a glance. Evidence also suggests that students may not be learning study skills because teachers may not be very familiar with the skills. Askov, Kamm, & Klumb (12) tested a group of teachers with Level G (designed for sixth to eighth grade students) of the Wisconsin Testing for Reading Skill Development: Study Skills (13). The median percent of skills mastered was between 51 and 60.

This investigation into the mastery of study skills was conducted on the assumption that the skills are fundamental to the information-gathering process and are necessary for students to acquire in order to learn independently. Some evidence does exist which suggests that students are not acquiring these basic skills.

PROCEDURES

Criterion-referenced assessment instruments were viewed as more appropriate for assessing students' mastery of study skills than norm-referenced measures since the purpose of the study was to measure students' skill attainment rather than examine a comparison to a norming group. The study skills tests that are part of the Wisconsin Tests for Reading Skill Development (13) were chosen because they yield information about attainment of specific map, graph and table, and reference skills.

The tests are arranged by levels of increasing difficulty, with Level G--which corresponds to the traditional sixth grade level or seventh year in school--being the highest level. The 10 tests at Level G were selected because they measure the variety of skills introduced at the earlier Design levels and, according to the Wisconsin Design staff (8), are a representative sample of the study skills necessary for students to have in order to independently locate and derive information from standard reference sources, maps, graphs and tables. These 10 skills are also included on certain norm-referenced tests (5, 6). The Level G skills and objectives are stated in the Appendix.

The Level G tests were administered to a group of sixth, ninth, and twelfth graders in Minnesota, Texas, and Wisconsin. None of the students had worked with the Wisconsin Design Study Skills element previously, or had had any instruction in study skills other than the incidental instruction typically found in content-area textbooks.

These grades were chosen as representative groups of students' mastery since, according to the Design staff (9), the Level G skills are appropriate for learning by the end of elementary or junior high school. The skills should be mastered by that time in order for students to be able to use them independently in high school where there is a greater focus on learning content materials.

RESULTS AND DISCUSSION

The results of the data analysis are presented in Tables 1-3. Mastery level was set at 80% in accordance with recommendations of the Wisconsin Design (9).

For the sixth and ninth grade students the means were surprisingly low as was the percentage of students attaining the mastery level of 80%. The percentage of sixth grade students mastering these skills ranged from 0 to 57 and the percentage of ninth grade students mastering the skills ranged from only 5.7 to 12.7. The means for the twelfth grade students were generally higher, although on five tests (Numbers 2, 3, 4, 7, and 10) the means were below mastery level. The percentage of students mastering the skills was also higher than for the sixth and ninth grades, but the range was from 5 to 91. On four of the tests (Numbers 2, 3, 4, and 7) the percentage of students mastering was well below 50.

CONCLUSIONS

Although only some of a possible array of study skills were chosen for assessment, the results indicated very low attainment of these skills for sixth and ninth grade students. These results are not definitive, but we can conclude that assumptions about middle school students being able to use the basic study skills are in question.

Assumptions about high school students "picking up" these basic skills during their three years are also in question. Again, the results are not definitive, but do indicate that many seniors lack a number of the skills. To adequately pursue this investigation into basic skills attainment among middle and high school students, further testing of tenth and eleventh grade students as well as wider sampling of all students should be done. Gathering evidence about students' lack of study skills attainment is a necessary step in not only convincing educators that a problem exists, but in informing them specifically about it. Attention to the students' needs in the form of focused and systematic skill instruction in the classroom is what will begin to alleviate all of our concerns about students' attainment of the basic skills. Ideally, this attention should be focused at the elementary (or early middle school) level so that students will have the skills to independently use in their high school experiences. Until there is a systematic approach implemented in grades K-6, however, attention to the study skills must also be given at the high school level.

REFERENCES

1. B. Bartz. "Maps in the Classroom," The Journal of Geography, 69 (January, 1970), 18-24.

2. R. Pierson. "Elementary Graphing Experiences," Arithmetic Teacher, 16 (March, 1969), 199-200.

3. P. Sullivan. "Realization: Final Report of the Knapp School Libraries Project," Chicago: American Library Association (1968), 32.

4. "Skill Development for the Social Studies." National Council for the Social Studies, Twenty-third Yearbook, 1963.

5. Iowa Tests of Basic Skills. Houghton Mifflin Co., 1971.

6. Comprehensive Tests of Basic Skills. Monterey: CTB/McGraw-Hill, 1968.

7. K. Job and L. Weiser. "Study Lessons in Map Reading," Chicago: Follett (1965), 6.

8. W. Otto, K. Kamm, & E. Weible. Wisconsin Design for Reading Skill Development: Rationale and Objectives for the Study Skills Element. Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, The University of Wisconsin, February, 1972.

9. E. Askov & W. Otto. The Wisconsin Design for Reading Skill Development: Teacher's Planning Guide-Study Skills. Minneapolis, Minnesota: National Computer Systems, 1971.

10. The National Observer, Dow Jones and Co., Inc. (September 11, 1976), 1.

11. The National Observer, Dow Jones and Co., Inc. (October 2, 1976), 6.

12. E. Askov, K. Kamm, & R. Klumb. "Study Skill Mastery Among Elementary School Teachers," The Reading Teacher, 30, February 1977.

13. K. Kamm, D. Stewart, & V. L. Van Blaricom. The Wisconsin Tests of Reading Skill Development: Study Skills, Levels A-G. Minneapolis, Minnesota: National Computer Systems, Inc., 1972.

Table 1

Sixth Grade Students' Mastery of

Wisconsin Design Study Skills

N = 148

	Level G Tests	$\bar{X}$	sd.	Percentage of Students Achieving Mastery Level (80%)
1.	Maps; Synthesis (12)*	5.6	2.5	37
2.	Latitude and Longitude (25)	7.3	6.5	5
3.	Meridians and Parallels (14)	4.6	2.9	3
4.	Scale: Fractional Units (16)	7.3	3.8	9
5.	Graphs: Multiplicative Differences (12)	5.5	2.5	30
6.	Graphs: Projecting and Relating (12)	7.1	2.6	57
7.	Schedules: Problem Solving (15)	4.2	2.6	0
8.	Readers' Guide (14)	8.3	3.4	26
9.	Card Catalogs (16)	10.0	4.2	34
10.	Outlining (15)	8.9	4.5	29

* The total number of items in each test is listed in parentheses after the test name.

Table 2

Ninth Grade Students' Mastery of
Wisconsin Design Study Skills

	Level G Tests	N	$\bar{X}$	sd	Percentage of Students Achieving Mastery Level (80%)
1.	Maps: Synthesis (12)*	96	4.9	3.3	12
2.	Latitude and Longitude (25)	94	6.6	6.4	10
3.	Meridians and Parallels (14)	87	4.8	3.5	9
4.	Scale: Fractional Units (16)	87	4.8	3.5	6
5.	Graphs: Multiplicative Differences (12)	85	4.6	3.2	11
6.	Graphs: Projecting and Relating (12)	80	4.9	3.1	11
7.	Schedules: Problem Solving (15)	76	4.0	3.3	8
8.	Readers' Guide (14)	68	3.8	3.8	10
9.	Card Catalogs (16)	63	5.2	4.2	6
10.	Outlining (15)	55	3.9	4.6	13

* The total number of items in each test is listed in parentheses after the test name.

Table 3

Twelfth Grade Students' Mastery of

Wisconsin Design Study Skills

N = 78

	Level G Tests	$\bar{X}$	sd.	Percentage of Students Achieving Mastery Level (80%)
1.	Maps: Synthesis (12)*	8.1	2.5	76
2.	Latitude and Longitude (25)	15.6	6.8	38
3.	Meridians and Parallels (14)	8.1	3.9	32
4.	Scale: Fractional Units (16)	9.6	4.0	24
5.	Graphs: Multiplicative Differences (12)	7.9	2.5	71
6.	Graphs: Projecting and Relating (12)	9.5	1.9	91
7.	Schedules: Problem Solving (15)	7.6	3.2	5
8.	Readers' Guide (14)	11.9	2.5	83
9.	Card Catalogs (16)	13.5	2.4	65
10.	Outlining (15)	11.7	3.9	69

* The total number of items in each test is listed in parentheses after the test name.

APPENDIX

Wisconsin Design for Reading Skill Development: Study Skills

Level G Skills and Objectives

1. Representation: Synthesizes information about an area[1]

   Objective: The child uses a variety of maps of a given area to determine specific characteristics (e.g., using topographic, climatic, political, and demographic maps of a particular area, the child infers that since the area has average rainfall, gently rolling hills, and a moderate climate, the occupations of the inhabitants may be mostly farm-oriented).

2. Orientation
   a. Uses latitude and longitude[2]

      Objective: The child uses lines of latitude and longitude to locate points on a map or globe (e.g., the child notes that New York City is 40° north latitude and 74° west longitude).

   b. Determines directions on any projection[3]

      Objective: The child uses meridians and parallels to determine directions on any projection (e.g., on an elliptical projection with the Prime Meridian at the center, the child traces the meridian from a given point to the pole to show north or south).

3. Measurement: Makes use of scale to determine distances[4]

   Objective: The child uses a scale bar referent ($\frac{0 \quad 1}{\text{miles}}$) or verbal referent (1 inch = X units) to determine and compare distances between points that are combinations of fractional and whole referent units apart when one referent unit equals two or more standard units of measure (e.g., when 1 inch = 10 miles, the child concludes that 2 1/2 inches = 25 miles).

4. Graphs

   a. Determines differences between numbers extracted[5]

      Objective: The child compares, by multiplying or dividing, pairs of numbers extracted directly or by interpolation from complex bar or line graphs.

b. Makes projections and relates information[6]

Objective: The child states probable outcomes or trends on picture bar, and line graphs (e.g., having observed a trend shown, the child predicts future performance) and relates the information presented and the projections derived to his previous knowledge.

5. Tables: Solves problems on schedules[7]

Objective: Given any schedule, the child derives information from it to answer a specific travel problem (e.g., given a plane schedule and the circumstances that Mr. Jones must travel from Chicago to Los Angeles and back between 6 a.m. and 7 p.m., the child determines that Mr. Jones must leave on West Air flight #203 and return on flight #46).

6. Utilization: Uses Readers' Guide[8]

Objective: The child uses Abridged Readers' Guide to Periodical Literature for locating material in general adult magazines.

7. Location: Uses card catalog to locate reference materials[9]

Objective: In the library, the child

- identifies author, subject, and title cards in the card catalog
- uses these cards to locate fiction and nonfiction books and other materials.

Note: among other materials are such things as games, filmstrips, films, records, photographic equipment, etc., which may be found in a well-stocked library.

8. Organization and evaluation: Makes formal outlines[10]

Objective: Given selections written at his instructional level of difficulty, the child

- selects the major topics
- groups the subtopics as in a formal outline.